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13. ABSTRACT (Maximum 200 words) A comparison of the health care cost of TRICARE, the Federal Employees Health Benefits (FEHB) Program, and a Catchment Area Management (CAM) project was done for fiscal year 1994. The study compared the government share of the average cost per beneficiary of the three programs and the average cost per beneficiary for the Department of Defense (DoD). The results of the study were mixed. The CAM project cost per beneficiary was lower than the TRICARE program cost per beneficiary. The FEHB program cost per beneficiary was lower than either the CAM or TRICARE cost per beneficiary when Fiscal Year 1994 program growth rates were calculated on a straight-line rate of 4.54 percent. When Fiscal Year 1994 growth was calculated based on a four-year average rate of 9.53 percent, FEHB program cost per beneficiary was less than TRICARE but more than the CAM project. Recommendations were made to expand on this study to evaluate what effects a program similar to the FEHB program would have on the Military Health Services System (MHSS) and to evaluate the cost of Medicare Subvention and CHAMPUS as a second payer for DoD beneficiaries over the age of sixty-five. Finally, the study recommends that DoD consider offering the FEHB program or a similar program to DoD beneficiaries over the age of sixty-five as an option for their access to health care.				
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GRADUATE PROGRAM IN HEALTH CARE ADMINISTRATION

**COST ANALYSIS OF TRICARE, THE FEDERAL EMPLOYEES
HEALTH BENEFITS PROGRAM, AND A CATCHMENT AREA
MANAGEMENT PROJECT**

**A GRADUATE MANAGEMENT PROJECT
PRESENTED TO:**

**S. C. RICE
CDR MSC USN**

**ELAINE C. EHRESMANN
LCDR MSC USN
FACULTY READER**

**IN FULFILLMENT OF CANDIDACY REQUIREMENTS FOR
THE MASTERS OF SCIENCE DEGREE IN
HEALTH CARE ADMINISTRATION**

**BY
CHARLES TAYLOR
CDR NC USN**

**BUREAU OF MEDICINE AND SURGERY, WASHINGTON, D.C.
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ABSTRACT

The purpose of this Graduate Management Project (GMP) was to conduct a study of the health care cost of TRICARE, the Federal Employees Health Benefits (FEHB) Program, and a Catchment Area Management (CAM) project during fiscal year 1994. The GMP compared the government share of the average cost per beneficiary of the three programs and the average cost per beneficiary for Department of Defense (DoD) beneficiaries. The out-of-pocket costs to Department of Defense beneficiaries were not included in the cost analysis.

The results of the study were mixed. The CAM project cost per beneficiary was lower than the TRICARE program cost per beneficiary. The FEHB program cost per beneficiary was lower than either the CAM or TRICARE cost per beneficiary when Fiscal Year 1994 program growth rates were calculated on a straight-line rate of 4.54 percent. When Fiscal Year 1994 growth was calculated based on a four-year average rate of 9.53 percent, FEHB program cost per beneficiary was less than TRICARE but more than the CAM project.

Recommendations were made to expand on this study to evaluate what effects a program similar to the FEHB program would have on the Military Health Services System (MHSS) and to evaluate the cost of Medicare Subvention and CHAMPUS as a second payer for DoD beneficiaries over the age of sixty-five. Finally, the study recommends that DoD consider offering the FEHB program or a similar program to DoD beneficiaries over the age of sixty-five as an option for their access to health care.

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CHAPTER 1

INTRODUCTION

There is increasing concern that TRICARE cannot live up to its expected outcomes (GAO/T-HEHS-95-145, Subcommittee Hearing on Military Personnel, Committee on National Security, 28 March 1995). Every TRICARE contract award has been protested, impeding the implementation process. Furthermore, the Department of Defense (DoD) initially made frequent amendments to Request for Proposals. While the number of amendments have dramatically decreased, they complicate the implementation process. Retirees complain of problems of accessing health care. Finally, concern has been raised by the Congressional Budget Office (CBO) and the Government Accounting Office (GAO) that projected TRICARE costs to the government will be higher than previously expected.

The focus of this study is to compare and contrast the cost of delivery of health care in the Military Health Services System (MHSS). This study will look specifically at the macro cost of health care delivery in three programs:

1. The CHAMPUS Reform Initiative (CRI) in San Diego, CA, which was called TRICARE,
2. In a previous DoD initiative in Charleston, SC called the Catchment Area Management (CAM) project, and

3. In a new proposal before Congress that would allow certain DoD eligible beneficiaries to enroll in the Federal Employees Health Benefits (FEHB) program.

Historical Perspective

Development of Health Care in the United States

After World War II, there was growing interest in the social and organizational structure of health care and its delivery. This interest was occurring concurrently with the United States Government involvement in health care issues. This time period also saw increases in health care costs, with dramatic increases starting in the 1960s. In 1965, Medicare and Medicaid were enacted under Title XIII and Title XIX of the Social Security Act (Williams & Torrens, 1993). Medicare and Medicaid were implemented to increase access to medical care for the elderly and the indigent, respectively, and lead to dramatic changes in the usage of health care services (Williams & Torrens 1993). Medicare reimbursement was initially set on a "reasonable cost" basis. "Reasonable costs" directly related to the rapid increase in health care costs. In an attempt to control costs, Congress passed the Social Security Act of 1972, which established Professional Standards Review Organizations and allowed the Health Care Financing Administration (HCFA) to disallow reimbursement for care judged to be unnecessary. This act ultimately lead to the Prospective Payment System (PPS) that

initiated Diagnosis-Related Groups (DRG) for the reimbursement of hospitals for inpatient care on a fixed amount fee schedule.

Managed care concepts were first introduced in the United States in the early 1900s. Initially, the growth of managed care organizations was slow, but in recent years the number of managed care organizations has grown rapidly. The first health maintenance organization was established in 1929, the Ross-Loos Clinic in Los Angeles, CA for local water company employees (Minor 1996). In that same year Michael Shadid, MD established a rural farmers' cooperative health plan in Elk City, Oklahoma (Kongstvedt 1995). In the 1930s and 1940s other prominent managed care plans were founded. For example, in 1937 Group Health Association of Washington, D.C. was formed and in 1942 the largest and best known health maintenance organization (HMO) prototype, Kaiser Permanente, was founded (Kongstvedt 1995). These organizations were actively disapproved of and denounced by the American Medical Association because of fear of loss of physician autonomy. The 1980s ushered in a period of limited resources with a restriction on the growth of the economy. Simultaneously, there were governmental and non-governmental reorganization of the methods used in the financing of health care. These changes gave managed care organizations the opportunity to grow dramatically in the 1980s, and they are continuing to flourish. Major governmental intervention in the nation's health care policy and concern for health care costs were the impetus for an evaluation of health care delivery in DoD.

Background on the Department of Defense Health Care System

Health care delivery in the Department of Defense (DoD) developed along similar lines of civilian health care delivery. The direct care system was established with the express purpose of caring for wartime casualties. The DoD health care system was also designed to ensure the health of military personnel so that they are physically and mentally capable of carrying out their missions (GAO/HEHS-95-104 1995). These unique responsibilities require the Military Health Services System (MHSS) to deliver high quality health care in wide ranging situations, from preventive health care to the treatment of casualties in wartime. This has led to development of a costly and complex organization (GAO/HEHS-95-104 1995).

Access to care varies geographically in the DoD health care system. Only active duty personnel are guaranteed access to the MHSS direct care system. The remainder of the beneficiaries are served on a space available basis. Active duty dependents have first priority, with retirees and the dependents of retirees having the lowest priority (see table 1). Out-of-pocket costs for beneficiaries vary widely and are hard to anticipate. Health care costs are dependent on geographic location and the beneficiaries' abilities to access the direct care system.

The Department of Defense Health Care System consists of 8.3 million beneficiaries: 1.7 million are active duty and 6.6 million are non-active duty (DoD Information Package 1995). Of the 6.6 million non-active duty beneficiaries, 5.3

million are Civilian Health and Medical Program for the Uniformed Services (CHAMPUS) beneficiaries, while 1.3 million beneficiaries are eligible for Medicare (GAO/HEHS-95-104 1995). The total MHSS funding is approximately \$15 billion per year and, except for military pay, has been consolidated into a single defense medical appropriation, the Defense Health Program (DHP) Appropriation (DoD Information Package 1995). DoD projected that they would spend \$11.6 billion to provide direct care and \$3.6 billion on CHAMPUS in fiscal year 1995 (GAO/HEHS-95-104 1995). From 1981 to 1990 the number of CHAMPUS users grew 162 percent, with a 200 percent increase in outpatient visits, but has stabilized since that time (GAO/HEHS-95-104 1995).

The MHSS currently has 127 hospitals and 500 clinics. In 1988, DoD had 159 hospitals but by 1997 will have closed 58 of them, a decrease of 35 percent (Hosek, Bennett, Marquis, McGuigan, Hanley, Madison, Rastegar, & Hawes-Davidson 1995). There are 135,000 active duty personnel and 55,000 civilian personnel who work for, or support, the system. The system has gone through, and continues to go through, the downsizing of personnel, as does the rest of the DoD.

DoD health care services have historically had a high utilization rate. There are estimates that the utilization is as much as 50 percent more than standard fee-for-service systems (GAO/HEHS-95-104 1995). The high utilization is most likely related to the fact that health care in the direct care system, Military Treatment Facilities (MTF), is free. The high utilization rate is also related to DoD's resource allocation

methods. Historically, DoD has provided allocations based on workload, thus producing incentives for military health care providers to deliver more care. A report by the General Accounting Office (GAO) notes that over utilization is a chronic problem in the DoD health care system. They cite the example of a dental patient who is hospitalized over night for a tooth extraction. However, the GAO report fails to consider this situation may be an active duty member assigned to the barracks with no one to check on the patient's physical condition during the first 24 hours for signs of complications.

Attempts to control costs in the Military Health Services System have been focused on budgetary limitations, utilization review, and restrictions on capital expenditures. If there is excess demand for health care that the MTFs cannot supply, the patient is shifted to CHAMPUS. In the past, hospital commanders had little incentive to control CHAMPUS usage because CHAMPUS costs were the funding responsibility of the line commander.

The cost of health care was increasing so rapidly that the DoD was directed to initiate health care demonstration projects. Demonstration projects were designed at the urging of Congress, with the goal to find more cost effective ways to provide quality health care to DoD beneficiaries. There were two projects undertaken, the CHAMPUS Reform Initiative (CRI) and the Catchment Area Management (CAM) project. CRI was designed for large geographical areas and was the initial model for Tri-Service cooperation. The Catchment Area Management project was designed to be

used in areas of the United States where large MTF catchment areas did not overlap. The demonstration project that lead to the ultimate development of TRICARE was adopted from the CRI in California and Hawaii.

TRICARE was authorized by Congress in 1993, and contracts are currently being awarded in the 12 TRICARE regions (see table 2). There are indications that the cost of TRICARE is exceeding expectations. There was concern until Humana Military Healthcare Service was awarded the contract for Regions 3 and 4 (Subcommittee Hearing, DoD Medical Program, FY 1997, 24 April 1996) that all contracts awarded to date had been awarded to Foundation Health Corp., Inc. The Humana contract was awarded on 04 April 1996 for \$3,775,591 for 1,100,000 beneficiaries and has a start date of 01 July 1996. TRICARE has not been able to meet the access needs of all of their beneficiaries (Subcommittee Hearing, DoD Medical Program, FY 1997, 24 April 1996). Furthermore, TRICARE is not available to individuals age sixty-five and older. Legislation has been introduced into Congress that would allow the Health Care Financing Administration to reimburse DoD for health care provided to beneficiaries that receive Medicare.

The Federal Employees Health Benefits Program (FEHBP) has been suggested as a means of improving access to health care for non-active duty beneficiaries, including those over sixty-five (Subcommittee on Civil Service, FEHBP, 12 September 1995). Congressional hearings have been held on this subject, and the Military Coalition has been campaigning Congress to open up the FEHB program to DoD

beneficiaries. For a list of the members of the Military Coalition, please refer to table 3. Concern has been expressed that the FEHB program will have an untoward effect on the DoD health care system. There is also a question of whether deductibles and co-payments for active duty dependents should be prorated.

Statement of Problem

Peacetime health care delivery for DoD beneficiaries should be able to measure up to health care provided to the general public. It should be provided at a reasonable cost, be of the highest quality, and of comparable access. Even though Congress has directed DoD to implement TRICARE in the MHSS, they are also looking critically at ways to cut costs. Congress is examining the implementation of the FEHB program for the non-active duty military beneficiaries and has directed studies on the downsizing of the MHSS. To think that Congress will not derail TRICARE if the costs become prohibitive is unrealistic. If the MHSS cannot control the costs of health care delivery in the military and the costs continue to increase, whether by TRICARE, CHAMPUS, or health care received at MTFs, lawmakers who want to cut funding may remove the control of peacetime health care from DoD.

There is a growing concern that TRICARE will not encourage innovations at the local MTF level. The CAM projects allowed for innovations and decision making by the local commanders and made the commander accountable to their beneficiaries and to their chains of command. However, TRICARE does provide for a universal

health care program with uniform benefits for all members throughout the United States.

There has been no publication of a comparative evaluation or cost analysis of which of the three programs: CRI, the model for TRICARE; the CAM projects; or the FEHB program, would be the most cost effective for the government. However, individual analysis of each program has been done or is being done (Subcommittee on Military Personnel, Department of Defense Health Care Programs, 7 March 1996) (Sloss & Hosek 1995) (Anderson & Hosek 1994). The Department of Defense is currently conducting a study comparing the cost per beneficiary for DoD beneficiaries and FEHBP enrollees (Subcommittee on Military Personnel, Department of Defense Health Care Programs, 7 March 1996). A review of the literature is in order to identify, to compare, and to contrast different aspects and issues involved with these three alternatives for delivering health care.

Literature Review

The MHSS has historically been composed of two distinct, mutually exclusive, parts: the direct care system; and the CHAMPUS component (Air Force Catchment Area Management Demonstration Proposal 1988). The direct care system component of MHSS provides direct health care at DoD hospitals and clinics. There is essentially no charge for health care received at the MTFs. The CHAMPUS component is a health insurance plan that is designed to augment health care received at the MTF for

non-active duty beneficiaries (Lynn 1994). Beneficiaries over the age of sixty-five are no longer eligible for CHAMPUS, but can use Medicare (Hosek, Bennett, Marquis, McGuigan, Hanley, Madison, Rastegar, & Hawes-Davidson 1995). CHAMPUS requires the beneficiary to share in the costs of the health care received. Therefore, care received outside the MTF is more expensive for the beneficiary.

CHAMPUS began in 1956 and expanded in 1965 (GAO/HEHS-95-142 1995). It is based on traditional types of fee-for-service health insurance and allows beneficiaries to seek the civilian health care provider of their choice. CHAMPUS has always been intended as a supplement for the care beneficiaries receive at the MTF, but the costs and use of CHAMPUS have grown dramatically (Air Force Catchment Area Management Demonstration Proposal 1988).

The cost of health care in the MHSS direct care system has also risen, but not as fast as CHAMPUS. The costs of both, the direct care system and CHAMPUS, have grown by 225 percent in the decade from 1980 to 1990 (GAO/HEHS-95-104 1995).

Health care costs have increased for multiple reasons.

1. There has been an increasing number of DoD health care beneficiaries, associated with a decrease in the number of Military Treatment Facilities leading to a higher utilization rate of civilian health care services.
2. The average age of beneficiaries has risen with a corresponding increase in acuity, having the effect of increasing utilization of health care services.
3. National health care costs have dramatically increased during that time.

4. MTF commanders have had insufficient incentive to decrease the workload in their facilities (GAO/HEHS-95-104 1995).

Managed care first interested DoD in the early 1980s when health care costs and beneficiary dissatisfaction were dramatically escalating (GAO/HEHS-95-142 1995). This interest was reinforced when Congress passed the Defense Authorization Act of 1988, directing the Secretary of Defense to initiate demonstration projects that encompassed several alternative health care delivery systems (Reischauer 1991).

The Department of Defense considered four variables in designing and implementing the demonstration projects.

1. CHAMPUS expenditures to treat non-active duty beneficiaries.
2. Geographic clustering or catchment area.
3. Relative population size in a given catchment area.
4. Access to the beneficiaries respective MTF (Reily 1992).

With these guidelines, two basic demonstration projects were designed: the CHAMPUS Reform Initiative (CRI); and the Catchment Area Management (CAM) project. The demonstration projects were designed to improve services to beneficiaries and to effectively contain costs (GAO/HEHS-95-142 1995).

CHAMPUS Reform Initiative

CRI was designed to be used in large geographic areas that had multiple MTFs with overlapping catchment areas. This program was further designed to have a "gatekeeper" system. DoD reported to Congress in November 1986 that they planned to award contracts for demonstration projects to reform CHAMPUS in three geographic areas: California/Hawaii, North Carolina/South Carolina, and Florida/Georgia (GAO/T-HRD-89-25 1989). Only one bid was subsequently received and it was for the California/Hawaii area (GAO/HEHS-95-142 1995). This contract was awarded to Foundation Health Corp. Inc., on February 1, 1988, to provide health care benefits from August 1988 to January 1994 (GAO/HEHS-95-142 1995).

One goal of the CRI was to slow the increase in health care costs for DoD and to improve beneficiary satisfaction by providing better access to health care. Another goal was to decrease the amount of deductibles and co-payments required under CHAMPUS (Anderson & Hosek 1994). With these objectives in mind, CRI was designed to make available reduced cost sharing if beneficiaries were willing to have a limited choice of physicians and organizations that provide health care (Anderson & Hosek 1994). CRI offered two alternative health plans besides Standard CHAMPUS (Anderson & Hosek, 1994). The first alternative was based on the typical health maintenance organization (HMO) and was called CHAMPUS Prime (table 4). The second alternative, a preferred provider organization (PPO), was called CHAMPUS Extra (table 5).

There were five main features of CRI.

1. The management of CHAMPUS by civilian contractors who share in the risks of utilization.
2. Preferred provider and managed care networks offered under the Prime and Extra components of CRI.
3. MTFs would work closer with civilian providers and pool health care resources to better serve beneficiaries.
4. Establishment of Health Care Finders to assist the beneficiaries in finding providers to meet their medical needs at reasonable costs.
5. Utilization review would be established for all health care received through the CRI network (Anderson & Hosek 1994).

A RAND evaluation in 1993 of the CRI program in California and Hawaii found that it was 8 percent more expensive than standard CHAMPUS. RAND also found that the CRI demonstration project in Washington/Oregon had no discernible difference in quality of care from standard CHAMPUS. They did find that access was better and out-of-pocket expenses were lower (Hosek, Goldman, Dixon, & Sloss 1993). No comparison was done of CRI to the CAM project.

Catchment Area Management Project

Because CRI allowed for little control by the local commander, DoD established the Catchment Area Management project as a demonstration alternative (Hosek, Goldman, & Lee 1994). The premise of the CAM demonstration project was that the MTF operated the project and had complete control in integrating CHAMPUS and MTF health care (Hosek, Goldman & Lee 1994). The CAM projects were to be established in fiscal years 1989 or 1990. The life of the individual CAM projects were to be three years (Reischauer 1991). Five sites were selected by DoD as CAM demonstration projects. These sites were: Bergstrom Air Force Base, Austin, TX; Luke and Williams Air Force Bases, Phoenix, AZ; Fort Carson, Colorado Springs, CO; Fort Sill, Lawton, OK; and Naval Base, Charleston, SC.

The MTF commanders were given complete control and were responsible for providing health care to the beneficiaries in their catchment area. They were given flexibility to enter into contracts or other agreements with providers of health care outside their MTF (Air Force Catchment Area Management Demonstration Proposal 1988). The goal of these projects was to give the MTF commanders enough flexibility and control to increase access to health care for beneficiaries, decrease costs, and ensure high quality health care (Air Force Catchment Area Management Demonstration Proposal 1988).

The major features of the Catchment Area Management Projects were:

1. The MTF commander managed both the MTF and CHAMPUS budgets.
2. As an alternative to CHAMPUS, a managed care network of selected civilian providers was arranged. The Army and the Air Force followed an HMO model and the Navy followed a PPO model.
3. A Health Care Finders network was established similar to CRI.
4. Permission was granted to the local commander, except in the Navy, to reallocate funds between CHAMPUS and MTF resources to optimize the use of the funds. (CHAMPUS funds for the Navy had historically been controlled by the Bureau of Medicine and Surgery and BUMED believed that it was prudent to retain control of the funds for the Charleston CAM demonstration project (Reischauer 1991). Navy commanders had to request reallocations on a case by case basis, potentially eroding the initiative for the commander to decrease the use of CHAMPUS dollars (Reischauer 1991).)
5. Utilization review and quality assurance programs were used to ensure low cost, high quality health care (Sloss & Hosek 1995).

TRICARE

As stated in Public Law 103-139, section 8025, dated November 11, 1993, the TRICARE program shall include, but not be limited to:

1. A uniform, stabilized benefit structure characterized by a triple option health benefit;
 2. A regionally-based health care management system;
 3. Cost minimization incentives including "gatekeeping" and annual enrollment procedures, capitation budgeting, and at-risk managed care support contracts; and
 4. A full and open competition for all managed care support contracts
- (Defense Authorization Act 1993).

This law restructured the CHAMPUS Reform Initiative of California and Hawaii and adopted the name "TRICARE" (GAO/HEHS-95-142 1995).

The goal of TRICARE is to bring together the health care delivery systems of the DoD Medical Departments (U.S. Army, U.S. Navy, and U.S. Air Force) and CHAMPUS to ensure high-quality and consistent health care to beneficiaries, with the prudent use of resources available to military medicine (GAO/T-HEHS-95-117, Subcommittee Hearing on Military Personnel, Committee on National Security, 28 March 1995). Cooperation is inherent in the organization of TRICARE, and the success of TRICARE depends upon inter-service coordination (GAO/T-HEHS-95-117, Subcommittee Hearing on Military Personnel, Committee on National Security, 28

March 1995). TRICARE's reorganization of medical facilities into regions administrated by joint-service "lead agents" is a major change for the MHSS (GAO/T-HEHS-95-117, Subcommittee Hearing on Military Personnel, Committee on National Security, 28 March 1995).

A major component of TRICARE is the series of managed care support contracts that supplement the capabilities of regional military health care delivery networks. There are to be seven at risk, fixed-price contracts, supporting the twelve TRICARE regions (Table 1) (GAO/HEHS-95-142 1995). The TRICARE Prime cost sharing provisions will be phased in as each regional TRICARE contract begins operation. There are four major components of TRICARE:

1. TRICARE divides the continental United States, plus Hawaii, into twelve health service regions (see table 2). A medical center commander in each region is designated as the lead agent who is responsible for all health care delivered to DoD health care beneficiaries in that region, whether by civilian or military providers.
2. Beneficiaries will be given the opportunity to choose from three options: a health maintenance organization (HMO) option; a preferred provider organization (PPO) option; and the standard fee-for-service option.
3. DoD is providing health care resources through OSD(HA) to the MTFs on a capitation based methodology. The capitation methodology will provide

incentives for effective health care management and efficient use of health care resources.

4. Contracts will be awarded in each region, with civilian health companies providing health care to beneficiaries as a complement to the local MTFs (GAO/T-HEHS-95-117, Subcommittee Hearing on Military Personnel, Committee on National Security, 28 March 1995).

TRICARE will also incorporate cost control features of private sector managed care programs, using primary care case managers, capitation budgeting, and utilization management techniques (GAO/HEHS-95-104 1995). The planned outcome is that TRICARE will provide a more cost efficient health care system and still maintain a high quality of health care delivery.

The three (3) alternatives offered to beneficiaries are:

1. TRICARE Prime (HMO option). Prime is the only option that requires enrollment. This option offers a wide scope of coverage, plus additional preventive and primary care services. Prime enrollees do not have the usual CHAMPUS cost sharing, but, except for active duty, will have co-payments for civilian services. The co-payments are less than in the standard and extra options. There is an enrollment fee for retirees and their dependents but enrollment is free for active duty members and their dependents. Prime enrollees may also use a point-of-service alternative, with significant higher out-of-pocket expenses than in either the standard or extra option.

CHAMPUS-eligible retirees who enroll in Prime will pay eleven dollars per day for civilian inpatient care compared to the \$323 per day plus twenty-five percent of professional fees charge faced by retirees who use TRICARE Standard (see table 4).

2. TRICARE Extra (Preferred Provider). When a CHAMPUS-eligible beneficiary uses a preferred provider, they receive an out-of-pocket discount and usually do not have to file any claim forms. There is no enrollment in Extra and beneficiaries may participate on a case-by case basis just by using the network providers. Access to health care at a military treatment facility is based on the availability of services (see table 5).
3. TRICARE Standard (standard CHAMPUS coverage). There is no enrollment in Standard and beneficiaries may participate on a case-by case basis just by using their own providers. Access to health care at a military treatment facility is based on the availability of services (see table 5).

Active duty members are automatically enrolled in Prime and enrollment is free (see table 4). Their dependents have the next priority for enrollment into Prime, with no enrollment fee. Retirees and their dependents under age sixty-five have next priority. Their enrollment charges are \$230 for single and \$460 per family (GAO/HEHS-95-104 1995).

It will be difficult and expensive to offer TRICARE Prime to beneficiaries outside catchment areas. Therefore those beneficiaries will be required to use Extra or

Standard (GAO/HEHS-95-104 1995). DoD, with strong Congressional support, will offer an HMO benefit and a pharmacy network to beneficiaries that are affected by Base Realignment and Closure (BRAC) legislation (DoD Information Package 1995). This action leads to a question of fairness when compared to individuals outside traditional catchment areas.

Procurement Process

The Office of CHAMPUS, an organization within OSD(HA), administers the procurement process for TRICARE contracting. The steps involved are as follows (GAO/HEHS-95-142 1995):

1. Issuance of a Request for Proposal (RFP), with detailed specifications and instructions offerors are to follow. Offerors are required to submit both a technical and a business (price) proposal.
2. At receipt of proposal, a Source Selection Evaluation Board (SSEB) evaluates the technical proposals according to detailed evaluation criteria.
 - a. Board size depends on the number of offerors.
 - b. Members are selected from OSD(HA), the military Surgeons General, the military treatment facilities, and OCHAMPUS.
 - c. The technical proposal is 60 percent of overall scoring.

3. The Business Proposal Evaluation Team (BPET) evaluates the proposed prices.
 - a. Comprised of ten (10) members divided into two teams, one to evaluate administrative costs, and the other to evaluate health services costs.
 - b. Team members that evaluate the administrative costs are selected from the Defense Contract Audit Agency. Team members that evaluate health services costs are consultants and some are actuaries.
 - c. The business (price) proposal is 40 percent of overall scoring.
4. A Source Selection Advisory Council (SSAC) reviews the work of the two boards and consults with them.
 - a. Performs oversight of the work of the SSEB and the BPET.
 - b. Comprised of six executive level personnel, such as lead agents and hospital commanders.
5. Discussions are done with offerors about weaknesses and deficiencies in their proposals.
6. DoD requests offerors to submit "best and final offers."
7. DoD may conduct a pre-award survey if outstanding issues need to be resolved.

8. The two boards again evaluate the proposals, complete scoring, and prepare reports on the evaluations.
9. A senior executive designated as the Source Selection Authority uses these reports in selecting the winning offeror.
10. Debrief of unsuccessful offerors.
11. Offerors must provide documentation for administrative and health care prices and justify health care prices by addressing seven cost factors over which the offerors have some control:
 - a. HMO option penetration rates (enrollment).
 - b. Utilization management.
 - c. Provider discount.
 - d. Coordination of benefits/third party liability.
 - e. The amount of savings realized when sharing resources with the Military Treatment Facilities.
 - f. Their expenditures when sharing resources with the Military Treatment Facilities.
 - g. Enrollment fee revenues.
12. The offeror must provide trend data for costs and must pledge an equity amount to absorb losses if health care costs exceed the amount proposed.

Contracting Issues with TRICARE

TRICARE is a fixed price, at-risk program with gains and losses shared between the contractor and the government (Davidson 1995). The contractor is at risk for health care cost overruns up to one percent of health care costs. Above that figure government and contractor share the overrun costs. The contracting process is costly, cumbersome, and complex; one contract took two years to award. One contractor stated that the process was very burdensome and costly (Contractor Interview 1995). Another contractor estimated that the cost of preparing a Request for Proposal is one to two million dollars (GAO/HEHS-95-104 1995). Prospective contractors are frustrated because of the level of detail and the many changes to the Requests for Proposals. DoD considers the detailed procurement specifications, contracting process, and associated costs to be reasonable, because of the size of the contracts and the need to establish a uniform program nationwide (Davidson 1995).

The contracting process has been complicated by multiple protests from contractors and frequent amendments to the Request for Proposals by DoD, but implementation is on schedule. One contractor expects that there will be a protest filed with the award of every contract, because of the money involved (Contractor Interview 1995).

Cost-Sharing and Access Issues Associated with TRICARE

There are inequities stemming from differences in civilian managed care health markets (Davidson 1995). Beneficiaries in some areas may not have access to TRICARE Prime and Extra options. In non-catchment areas that have well-developed managed care networks, TRICARE Prime will be offered. Traditional CHAMPUS will be offered in areas without managed care networks. Members of Congress realize that the quality of care given in MTFs is excellent and that MTFs can provide health care at a lower cost, but access continues to be a problem for some beneficiaries (Subcommittee Hearing , FEHBP, 12 September 1995).

Retirees will experience greater difficulty in gaining access to the direct care system under TRICARE (GAO/HEHS-95-142 1995). DoD's policy of encouraging active duty families to enroll in Prime will decrease the space available for retirees and their dependents. The access for retirees will be reduced still more by DoD's emphasis on caring for TRICARE Prime enrollees in MTFs. The result of this policy is that Prime enrollees will have lower out-of-pocket expense and that DoD will have lower costs.

TRICARE does not address retirees sixty-five and older (GAO/T-HEHS-95-145, Subcommittee Hearing on Military Personnel, Committee on National Security, 28 March 1995). DoD has supported Congressional efforts to receive reimbursement through HCFA when providing health care for Medicare eligible DoD beneficiaries (GAO/HEHS-95-104). Beneficiaries over the age of sixty-five have suggested

extending CHAMPUS beyond the age of sixty-five (GAO/T-HEHS-95-145, Subcommittee Hearing on Military Personnel, Committee on National Security, 28 March 1995). It has also been proposed that all non-active duty beneficiaries be allowed to join the FEHBP (Davidson 1995). Both suggestions would make Medicare Subvention unnecessary.

Approximately 1.1 million DoD health care beneficiaries are also eligible for Medicare, with thirty percent receiving their health care at DoD Medical Treatment Facilities (DoD Information Package 1995). DoD receives no reimbursement for the care of these individuals and this care is not counted in the annual appropriation. Medicare Subvention would lower out-of-pocket expenses for beneficiaries over sixty-five years of age, therefore, it is assumed that more than the current thirty percent using the DoD system would seek health care at MTFs (DoD Information Package 1995). If Medicare Subvention was enacted, Medicare beneficiaries choosing DoD for their health care would be required to use DoD as their sole provider. There is concern that if DoD receives Medicare subvention and health care is provided to beneficiaries over sixty-five years of age, access may be impeded for other DoD beneficiaries (GAO/T-HEHS-96-100)

Fee structures have reduced the disparity in beneficiary cost sharing for inpatients but not outpatients. Prime enrollees must pay civilian providers some co-payment, while the military treatment facility (MTF) beneficiaries make no co-payment. DoD has considered establishing co-payments for TRICARE Prime outpatient care in

military facilities, except for active duty members. This would eliminate cost inequities for non-active duty beneficiaries and would help control demands for health care, thus freeing up capacity in MTFs (Davidson 1995).

Cost Effectiveness of TRICARE

The Congressional Budget Office (CBO) is skeptical about the projected cost savings of TRICARE. CBO's range of estimates for TRICARE vary from a six percent cost increase in the most pessimistic case to a one percent cost decrease in the most optimistic case (see table 7). These figures are based on the assumption that, without TRICARE, DoD would spend \$9.4 billion for health care in the fiscal year 1996 Defense Health Program (DHP) Appropriation (Subcommittee Hearing, Singer Testimony, 12 September 1995). CBO further states that TRICARE stops short of remedying the inefficiencies that have plagued DoD's management and delivery of health care (Subcommittee Hearing, Singer Testimony, 12 September 1995). At the same subcommittee hearing the Assistant Secretary of Defense for Health Affairs strongly denied CBO's numbers, stating that "TRICARE enhances cost-effectiveness" (Subcommittee Hearing, FEHBP, 12 September 1995).

Federal Employees Health Benefits Program

One approach that has been suggested by beneficiaries and Congress is giving DoD non-active duty health care beneficiaries better access to civilian health care providers by allowing them to join the Federal Employees Health Benefits (FEHB)

program (Subcommittee Hearing, FEHBP, 12 September 1995). DoD is currently reviewing the FEHB program as an option, with a report due in July 1996. However, the ASD(HA) stated that he considered "FEHB a bad idea" (Subcommittee Hearing, FEHBP, 12 September 1995). In a more recent hearing the ASD(HA) stated that DoD is currently examining the FEHB program (Subcommittee Hearing, Military Personnel Committee, 7 March 1996). The Congressional Budget Office has also looked into offering the FEHB program to non-active duty beneficiaries (see table 6 and table 7) (Subcommittee Hearing, Singer Testimony, 12 September 1995).

Current FEHB Program

The Federal Employees Health Benefits Program was established by the Federal Employees Health Benefits Act of 1959 as Public Law 86-382, September 28, 1959 (Statistical Abstract 1994). The FEHB program is a source of health insurance for 8.6 million federal government employees, their dependents, and federal retirees (Minor 1996). Enrollment is available to permanent employees, but voluntary (OPM 1990). Out of the 8.6 million eligible beneficiaries approximately eighty-eight percent have chosen to enroll in the program, with an annual cost of \$16.3 billion (Minor 1996). There are a wide variety of health care plans to choose from, everything from fee-for-service to HMO types of plans. There are 331 HMOs in the FEHB Program that are offered in designated geographic locations (Minor 1996). The government pays

seventy-two percent of the average premium with the remaining twenty-eight percent being paid by the beneficiary (Davidson 1995).

The FEHB program is exclusively part of the private sector and is the country's largest employer-based health insurance program (Subcommittee Hearing, Flynn Testimony, 12 September 1995). The Office of Personnel Management (OPM) contracts annually with nearly 400 traditional insurance plans and HMOs to provide the FEHB program benefit packages (GAO/T-HEHS-95-145, Baine Testimony, 28 March 1995).

Effects of DoD Beneficiaries on FEHB

In 1995 FEHB cost the government \$16 million for 6.6 million beneficiaries. The addition of DoD beneficiaries could increase these numbers by seventy-five percent. Administrative costs would not increase dramatically because DoD beneficiaries added to the program would bring economies of scale into play. Furthermore, if FEHB was mandated for non-active duty beneficiaries, OPM would use the same contracting process, benefit structure, and informational material for the new groups (Subcommittee Hearing, Flynn Testimony, 12 September 1995).

OPM requires that the covered population must be clearly committed to the FEHB program and that FEHB be the exclusive vehicle for health care coverage for non-active duty beneficiaries. This would be necessary for rate setting purposes since

group insurance principles rely on achieving a broad mix of individuals to maintain attractive rates (Subcommittee Hearing, Flynn Testimony, 12 September 1995).

Effects of FEHB on DoD and DoD Beneficiaries

If FEHB was mandatory as OPM prefers, beneficiaries other than active duty personnel would no longer have the option to receive care from the military system. Direct care would be exclusively oriented to wartime requirements (Davidson 1995). This requirement would also effectively put all non-active duty beneficiaries on equal footing for access, since the FEHB program has no priority system.

Coverage for beneficiaries would vary by plan selected and by region of the country because all FEHB plans are not available nationwide (Davidson 1995). DoD would at least pay the government share of seventy-two percent, with current law allowing the government to pay up to seventy-five percent (Subcommittee Hearing, FEHBP, 12 September 1995). CBO states that it is likely the cost will be less than is currently spent by DoD, with a probable saving of one billion dollars or more per year. This estimate assumes that DoD will pay Medicare Part B premiums and that beneficiaries will not be prorated according to rank or pay scale (Subcommittee Hearing, FEHBP, 12 September 1995).

The projected savings could be used to defray some of the added costs active duty dependents would have to pay for premiums under the FEHB program. This may add to DoD expenditures because individuals may elect to receive benefits greater than

the FEHB basic HMO package (Subcommittee Hearing, FEHBP, 12 September 1995). The out-of-pocket expenses for active duty dependents (shown in table 6) are increased whether using an HMO (Prime) plan or a fee-for-service (Standard) plan (Subcommittee Hearing, FEHBP, 12 September 1995).

CBO estimates that downsizing the direct care system and eliminating CHAMPUS would eventually reduce the Defense Health Program (DHP) Appropriation annually by approximately nine billion dollars, because MHSS would not be providing health care to non-active duty beneficiaries. This does not include the costs of closing military medical facilities, thus deferring savings for a period of time. This saving could be used to help fund FEHB programs for the DoD health care beneficiaries (Subcommittee Hearing, FEHBP, 12 September 1995).

Purpose

The intent of this study is to determine if it is more cost effective to the government to deliver health care under TRICARE, the Catchment Area Management project, or the Federal Employees Health Benefits program. Cost per beneficiary will be studied in this cost analysis.

H_a : There is a significant difference in the cost of health care per beneficiary between TRICARE, the CAM project, or the FEHB program.

H_0 : There is no significant difference in cost of health care per beneficiary between TRICARE, the CAM project, or the FEHB program.

The dependent variable, the average cost of the delivery of health care per beneficiary, may, or may not, vary significantly between programs. The independent variables, TRICARE, CAM project, and FEHB program are the presumed cause of costs. To support or reject the null hypothesis, the average cost of health care per beneficiary will be compared to determine if the dependent variable varies with manipulation of the independent variables. If the null hypothesis is accepted, one could safely say that the three types of health care delivery programs do not affect the average costs of health care per beneficiary.

Study Objectives

1. To determine the effect that TRICARE, the CAM project, and FEHB program have had and are having on the cost of the delivery of health care.
2. To serve as a starting point in identifying which program has the highest potential for providing health care at a reasonable cost to the DoD and to their beneficiaries, while ensuring high quality, and providing acceptable access.
3. To prepare accurate information to the MHSS that will provide assistance in the decision making process on the most cost effective health care delivery system for DoD.

CHAPTER 2

METHODS AND PROCEDURES

To determine if there is a cost difference in the delivery of health care between the TRICARE and the FEHB program in the San Diego, CA geographic region and the Catchment Area Management project and the FEHB program in the Charleston, SC geographic region, cost data was gathered on each of these programs. Since a CRI and CAM project cannot be ongoing in the same geographic area, two separate sites were selected.

Data for CRI was taken from the San Diego, CA geographic area in Region 9. CAM and FEHB program data was taken from the Charleston, SC geographic area in Region 3. The data used for the analysis was from fiscal year 1994. Data was extracted from the Defense Medical Information System (DMIS) and, if necessary, contacting OCHAMPUS for further information. Confidentiality was not be an issue because DMIS does not include beneficiaries' names or social security numbers. Data for the FEHB program was requested and received from OPM. Confidentiality was not an issue because OPM provided raw numbers without FEHB beneficiaries' names and social security numbers. After the data was collected, comparisons of the average health care costs were done.

The consistency and stability of the data extrapolated from DMIS is presumed to be reliable to the accuracy that it was inputted at the source and compiled by OCHAMPUS personnel. Validity of data collected from DMIS is presumed to be authentic by law and DoD instructions. To ensure construct validity, raw data can be requested from the originating facility and be compared with data collected from DMIS. Internal validity is not feasible because a correlation matrix cannot be done when comparing averages.

The consistency and stability of the data received from OPM is presumed to be reliable to the accuracy that it was inputted at the OPM Office of Actuaries. Validity of data collected from the OPM Office of the Actuaries is presumed to be authentic by law and OPM guidelines. It is impossible to ensure construct validity because OPM is the only source of the raw data. Internal validity is not feasible because a correlation matrix cannot be done when comparing averages.

CHAPTER 3

RESULTS

The cost per beneficiary in the San Diego, CA catchment area in fiscal year 1994 while the CHAMPUS Reform Initiative was in place was \$2,281 (table 8). The cost per beneficiary in Charleston, SC catchment area in fiscal year 1994 while the Catchment Area Management Project was in place was \$1,784 (table 8). This is a substantial difference of almost \$500 per beneficiary, which would indicate that CAM was much more cost effective than CRI.

Cost per beneficiary for enrollees in the FEHB program in the two specific DoD catchment areas in this study was not available, therefore program wide FEHBP figures were used. The FEHB program cost per beneficiary was calculated using FEHB program wide statistics, dividing the yearly total program expense by the number of beneficiaries (Statistical Abstracts 1994). It was necessary to calculate cost per beneficiary in this fashion because OPM does not routinely publish cost per beneficiary in their statistical abstracts. Furthermore, OPM did not have the cost of the program for 1994 prepared for publication and refused to furnish estimates for 1994. Due to this lack of information, the FEHB program estimated cost per beneficiary for 1994 was calculated using two methods (table 9).

In both methods the initial step was to divide the number of beneficiaries into the total program expense for each year from 1989 through 1993 to calculate the cost per beneficiary (table 9). The first step in method (a) was to find the percent of average growth of the cost per beneficiary for the four year period, 1990 to 1993. As can be seen in fig. 1 the average percent of growth of the cost per beneficiary using method (a) is 9.53 percent. Inflating the 1993 cost per beneficiary by 1.0953 results in an estimated cost per beneficiary for 1994 of \$1,806 (table 9).

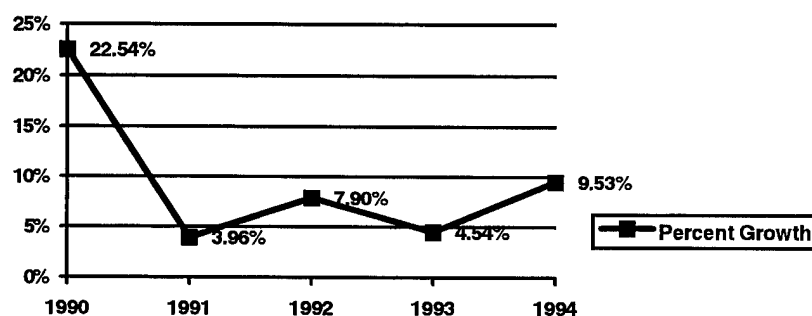


Fig. 1. Percent growth of the FEHB program using method (a).

The second method (b) was similar except that it used the percent of growth of the cost per beneficiary from 1992 to 1993. As can be seen in fig. 2 the percent of growth using method (b) is 4.54 percent. Inflating the 1993 cost per beneficiary by 1.0454 results in the estimated cost per beneficiary for 1994 of \$1,724 (table 9).

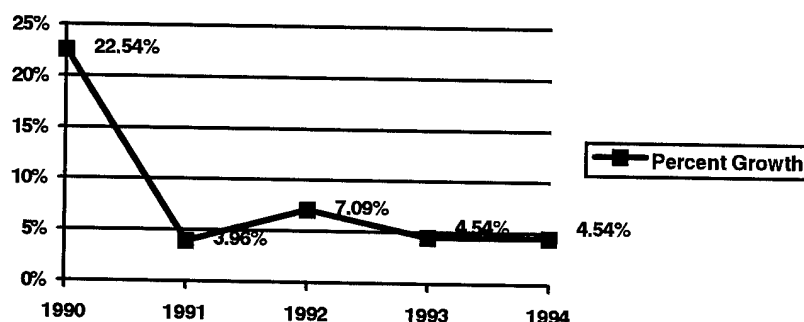


Fig. 2. Percent growth of the FEHB program using method (b).

Method (b) is probably the more accurate prediction of the estimated growth in FEHB program expense because, as can be seen in figures 1 and 2, the trend of growth for the FEHB program shows a decrease for the years leading up to 1994.

An added dimension to this review is to compare the cost per beneficiary for all DoD eligible beneficiaries to the cost per beneficiary in the FEHB Program. The DoD medical budget for FY 1994 was \$15,058,000,000 and there were 8,562,837 DoD eligible beneficiaries in that fiscal year. Using these figures, the cost per beneficiary in DoD in 1994 would be \$1,759 (table 10). A similar, but much expanded study is being conducted by OSD(HA) as a result of section 746 of the 1996 Defense Authorization Act (Public Law 104-106, February 10, 1996). Section 746 directs the Secretary of Defense to conduct a study that would evaluate the feasibility, costs, and consequences of improving access to health care for all DoD beneficiaries. The major thrust of this study is to determine avenues of care for DoD eligible beneficiaries who are ineligible for CHAMPUS and have limited access to MTFs. The study will evaluate whether

CHAMPUS should be authorized to serve as a second payer for those individuals that are Medicare eligible/DoD beneficiaries, whether Medicare Subvention should be enacted, and/or offer these beneficiaries the option to enroll in the FEHB Program. This study is currently being conducted for submission to Congress in July 1996.

CHAPTER 4

DISCUSSION AND CONCLUSIONS

The review of literature that was done for this study indicated that of the two Department of Defense (DoD) demonstration projects, the Catchment Area Management (CAM) project and the CHAMPUS Reform Initiative (CRI), the CAM project was more cost effective in the delivery of health care. However, the literature revealed that there was no direct comparison of the cost of the two demonstration projects. Furthermore, there was no information or data that compared the costs per beneficiary of the Federal Employees Health Benefits (FEHB) program to either the CAM project or to CRI.

The expectation was that FEHB program would be more cost effective than either CAM or CRI. This was believed to be true because the government has contracts in place with individual managed care organizations and with insurance companies, thus shifting the cost risks to these companies.

The cost of co-payments and deductibles that eligible beneficiaries are obligated to pay in the FEHB program or DoD health care system was not an element in this study. As can be seen in table 6, the out-of-pocket expense would increase significantly for the families of active duty personnel when paying for health care. Deductibles and co-payments are significant cost factors and should be closely

examined if there is any planned change in the DoD health care delivery system. The guarantee of free health care has historically been a very persuasive tool used in DoD recruitment and re-enlistment initiatives. The adoption of a program similar to FEHBP for DoD beneficiaries may have adverse effects on these initiatives.

Health Care Reimbursement

The original intent of this project was to determine if it is more cost effective to the federal government to deliver health care for two types of cardiovascular surgery under the CHAMPUS Reform Initiative (CRI), the Catchment Area Management (CAM) project, or the Federal Employees Health Benefits (FEHB) program. Specifically, the study was to examine how much the federal government paid for health care when eligible beneficiaries were admitted to non-government treatment facilities for DRG 106, coronary bypass with cardiac catheter, and DRG 107, coronary bypass without cardiac catheter. The study was to examine these health care costs in San Diego, CA. for CRI and in Charleston, SC. for CAM and compare those costs to the FEHB program health care costs in each of the two geographic regions.

The Retrospective Case-Mix Analysis for Open System Environment (RCMAS-OSE) in the Defense Medical Information System (DMIS) was used to collect the actual amount DoD reimbursed to non-Department of Defense health care treatment facilities for DRG 106 and DRG 107 in the specified geographic areas. This was a simple and straight forward process using DMIS. Complications occurred when similar

information was requested from the Office of Personnel (OPM). The Office of the Actuaries at OPM stated that they did not collect how much insurance plans paid providers for health care delivery but only collected data related to government and enrollee cost of premiums. They were also concerned with the financial viability of the insurance companies, the types of plans offered by the insurance companies, and the enrollees satisfaction with their particular insurance plan. They also collected the number of enrollees in each insurance plan.

The Office of the Actuaries provided a list of the health insurance companies that OPM had under contract to offer health insurance to FEHB program enrollees in the San Diego County, CA and Charleston County, SC areas. From that list of health insurance companies, approximately 35 to 40 telephone calls were made to various offices. The ultimate outcome of each call was that the information sought, reimbursement rates for DRG 106 and DRG 107, was proprietary information and unavailable for release. The inability to collect the amount paid to providers for DRG 106 and DRG 107 by the insurance plans in these two catchment areas through the FEHB program lead to a modification of the project.

Catchment Area Cost per Beneficiary

It was concluded that cost per beneficiary would be used in the comparison of the cost of delivery of health care. This information was easily extrapolated from the Defense Enrollment Eligibility Reporting System (DEERS), CHAMPUS, and from

Military Interdepartmental Purchase Requests (MEPRS) expense data using the Defense Military Information System (DMIS). Difficulties again arose with gathering data from OPM on the FEHB program.

The Office of Personnel Management collects and compiles a large amount of information related to the FEHB program. To find the cost per beneficiary in the FEHB program in the San Diego County, CA and Charleston County, SC, data was collected from multiple sources at OPM. Information was received from the Office of Communications, the Office of the Actuaries, the Office of Workforce Information, and the Retirement and Insurance Group of the Office of Financial Control and Management.

The Office of Actuaries provided the names of the health insurance plans in the two catchment areas this study was examining, their identification codes, and the number of enrollees broken down by male, female, annuitants, postal, and non-postal. This list did not break the information down by the number of enrollees that were enrolled in high self, high family, standard self, or standard family insurance plans. The total number of dependents the enrollees had in the family plans was also not a component of this list.

The information and data received from the Office of Workforce Information listed the number of enrollees by plan code and whether the enrollee was in a high self, high family, standard self, or standard family plan. This list detailed only non-postal enrollees and did not include how many dependents were in the family plans. The lack

of the actual number of dependents in the plan was not a major problem because OPM estimates that there are 2.91 members in each one of their family plan policies. The problem with this list was the lack of postal employee information. OPM stated that the list of postal employees in health insurance plans was only compiled nationally.

The above two groups of data were to be used with the data received from the Office of Communications. This office provided information on the dollar amount of the premiums paid by the government. This packet listed the names of the health insurance plans, their codes, and the dollar amount of the premium paid to each health insurance plan by the government and the enrollee. This information also broke down the premiums by high self, high family, standard self, or standard family for the individual plans. This packet did not provide information on the number of dependents in the family policies and the information was not listed by county or metropolitan statistical area.

The most helpful information was received from the Office of Financial Control and Management, Retirement and Insurance. Their information was in two exhibits and published in OPM's Statistical Abstracts (Statistical Abstracts 1994). The first exhibit gives the health insurance plans and their identification code with the total enrollment and the number of enrollees that are self only and family for each plan. Furthermore, this exhibit indicates the enrollees biweekly premiums that could have easily been transposed to a yearly premium figure. The second exhibit, besides giving the name of the health insurance plans and their identification code, breaks down each

plan by the number of employees, annuitants, total enrollment, and dependents, with the total number of individuals covered. The second exhibit was the most helpful, but did not break down the information by the type of plan and was not separated by region or city.

In consequence, there was no way to combine the information received from OPM to get the cost per beneficiary for San Diego County, CA and Charleston County, SC. If the data provided in the statistical abstracts had been separated by metropolitan statistical areas or if the data received from the Office of Workforce Information had postal employee and the number of dependents in the family policies, it would have been possible to create a spreadsheet using the premiums provided by the Office of Communication. Since this was not feasible, it was decided to use the cost per beneficiary for the entire FEHB program.

System Wide Cost per Beneficiary

Department of Defense system wide cost per beneficiary was calculated using data gathered from the Defense Medical Information System (DMIS). The expense data was taken from CHAMPUS and from Military Interdepartmental Purchase Requests (MEPRS) expense on DMIS. Population data was taken from the Defense Enrollment Eligibility Reporting System (DEERS) on DMIS. The cost per beneficiary was obtained by dividing the total expense number by the total DoD beneficiary population.

Information collected from the Office of Financial Control and Management, Retirement and Insurance Group at the Office of Personnel Management (OPM) was used to calculate the FEHB program's cost per beneficiary. As stated previously, the information required was in the two exhibits that were published in OPM's *Statistical Abstracts* (Statistical Abstracts 1994). The total number of beneficiaries enrolled in the FEHB program and the total expense of the FEHB program was taken from these exhibits.

Conclusions

The study has some interesting conclusions. Comparing the CAM project in Charleston, SC to the CRI in San Diego, CA, the comparison shows that the cost per beneficiary in the Charleston CAM project was lower. Comparing both Charleston, SC and San Diego, CA, to the nation wide average cost per beneficiary in the FEHB program, the results vary according to which growth assumption is used (table 9). If assumption (a) is used, FEHBP is more costly than the CAM project in Charleston, SC, but not as costly as the CRI in San Diego, CA. If assumption (b) is used, FEHBP is lower in cost per beneficiary than either of the two demonstration sites evaluated.

It is very difficult to draw any assumptions from the results of the data gathered. Comparing the CAM in Charleston, SC and the CRI in San Diego, CA, it appears that the CAM project would be much more cost effective because its cost per beneficiary is much lower than the CRI. However, there are limitations to that

assumption for multiple reasons. It is expected that health care cost in San Diego would be higher because the cost of living is higher. On the other hand, California has a much higher managed care penetration than South Carolina. The penetration of managed care in California in 1994 was 38.5 percent as a percentage of the total population and 73.6 percent as a percentage of California's total health insured population (Group Health Association of America 1995). The percentage of managed care penetration in South Carolina in 1994 was much lower. As a percentage of the total population, the managed care penetration in South Carolina was 4.2 percent and as a percentage of the total health insured population it was 7.5 percent (Group Health Association of America 1995). These figures indicate that health care cost may be higher in Charleston because of a higher fee-for-service base. In San Diego the health care costs would potentially be lower because of a higher penetration of managed care organizations.

When comparing the average DoD cost per beneficiary to the FEHBP's cost per beneficiary, the results are also mixed. The average DoD cost per beneficiary is \$1,759 (table 10). If this cost per beneficiary is compared to FEHBP's assumption (a), which was \$1,806 (table 9), DoD would be more cost effective. If compared to assumption (b), which was \$1,724 (table 9), the FEHB program would be more cost effective.

The difference between the average cost per beneficiary for DoD and assumption (b) of the FEHB program is just under \$35. This seems to be a small

amount but when multiplied by the total number of non-active duty DoD eligible beneficiaries it comes out to just under \$215 million. On a strictly monetary basis, if the government share of the premium is limited to 72 percent, the FEHB program is the more cost effective when compared to the CRI and the CAM projects that were examined in this study.

CHAPTER 5

RECOMMENDATIONS

1. Expand on this study to evaluate what effects a program similar to the Federal Employees Health Benefits Program would have on the MHSS.
2. Expand this study to evaluate the cost of Medicare Subvention and CHAMPUS as a second payer for DoD beneficiaries over the age of sixty-five.
3. The Department of Defense in conjunction with the Office of Personnel Management should consider offering the Federal Employees Health Benefits Program or a similar program to DoD beneficiaries over the age of sixty-five as an option for their access to health care.

The outcome of this study serves as a starting point for evaluating the costs of all the options suggested for the delivery of health care to DoD beneficiaries. This starting point can then be used to evaluate the non-direct costs and which program has the best overall utility for DoD. Regardless of the outcome, this study and similar studies allow the Military Health Services System (MHSS) to be proactive in their decision making.

It is important that the MHSS not be afraid to critically evaluate how it delivers health care and to recommend changes when required, even if these changes cause upheaval in the MHSS. It is very difficult for the individual service medical

departments to break through the parochialism of their branch of service, but it must be done. Furthermore we must expand our thinking even farther to include the entire Department of Defense. We must question what type of health care delivery best serves, not just our beneficiaries, but the total mission of the Department of Defense.

APPENDIX

A

TABLES

Table 1

Health Care Benefits in the Military Health Care System

Health Care Benefits in the Military Health Care System		
Beneficiary Category	Inpatient and Outpatient	
	Direct Care System	Civilian Providers
Active-Duty Service Members (ADs)	Entitled to care. First priority access at the military treatment facilities (MTFs).	Not eligible(may receive some specialty and emergency care).
Active-Duty Dependents (ADDs)	Eligible for resource available care at the MTFs behind ADs.	Entitled to care, but may need a nonavailability statement.
Retirees, Their Families, and Survivors Under Age 65	Eligible for resource available care at the MTFs behind ADs and ADDs.	Entitled to care, but may need a nonavailability statement.
Retirees, Their Families, and Survivors Age 65 and Over.	Eligible for resource available care at the MTFs behind ADs and ADDs.	Not eligible.

Source:

Congressional Budget Office, DoD Data, July 1995

Table 2
TRICARE Regions

TRICARE Regions				
Region	Lead Agent	States in Region	Beneficiary population	Hospitals and medical centers
1	National Capital (Bethesda, Walter Reed, Malcolm Grow Med. Cens)	CO, DE, D.C., ME, MD, MA, NH, NJ, NY, PA, RI, VT, Northern VA.	1,093,918	12
2	Portsmouth Naval	NC, Southern VA.	872,011	8
3	Eisenhower Army Medical Center	GA, SC, parts of FL.	1,063,770	12
4	Keesler AF Medical Center	AL, TE, parts of FL & LA.	595,024	10
5	Wright-Patterson AF Medical Center	IL, IN, KY, MI, OH, WV, WI.	653,328	5
6	Wilford Hall AF Medical Center	AK, OK, parts of LA & TX.	949,778	14
7	William Beaumont Army Med Center	AR, NV, NM, parts of TX.	323,058	8
8	Fitzsimons Army	CO, IO, KA, MN, MO, MT, NE, ND, SD, UT, WY, & parts of ID.	732,821	14
9	San Diego Naval	Southern CA	710,461	7
10	David Grant AF Medical Center	Northern CA	382,590	5
11	Madigan Army Medical Center	OR, WA, & parts of ID.	350,438	4
12	Tripler Army Medical Center	Hawaii	151,750	1
Total			7,878,947	100

Source:

GAO/HEHS-95-104, March 1995

Table 3

Military Coalition

Member Organizations of the Military Coalition

1. Air Force Association
2. Army Aviation Association of America
3. Association of the US Army
4. Commissioned Officers Association of the US Public Health Service
5. CWO and WO Association US Coast Guard
6. Enlisted Association of the National Guard of the US
7. Fleet Reserve Association
8. Jewish War Veterans of the USA
9. Marine Corps League
10. Marine Corps Reserve Officer Association
11. National Guard Association of the US
12. National Military Family Association
13. National Order of Battlefield Commissions
14. Naval Enlisted Reserve Association
15. Navy League of the US
16. Reserve Officer Association
17. The Military Chaplains Association of the USA
18. The Retired Enlisted Association
19. The Retired Officers Association
20. United Armed Forces Association
21. USCG Chief Petty Officers Association
22. US Army Warrant Officers Association
23. Veterans of Foreign Wars of the US

Source:

The Retired Officers Magazine, May 1996

Table 4

Health Care Benefits Under The TRICARE Prime Option

Health Care Benefits Under the TRICARE Prime Option		
Beneficiary Category	Inpatient and Outpatient	
	Direct Care System	Civilian Providers
Active-Duty Service Members (ADs)	Automatically enrolled. First priority access to care at the military treatment facilities (MTFs).	Not eligible(may receive some specialty and emergency care).
Active-Duty Dependents (ADDs)	Eligible to enroll. Enrollees are referred by their primary care physicians and have access to care on a resource available basis at the MTF behind ADs.	Enrollees are referred by their primary care physician.
Retirees, Their Families, and Survivors Under Age 65	Eligible to enroll. Enrollees are referred by their primary care physicians and have access to care on a resource available basis at the MTFs behind ADs and ADDs.	Enrollees are referred by their primary care physician.
Retirees, Their Families, and Survivors Age 65 and Over.	Not eligible.	Not eligible.

Source:

Congressional Budget Office, DoD Data, July 1995

Table 5

Health Care Benefits Under the TRICARE Extra and Standard Options

Health Care Benefits Under the TRICARE Extra and Standard Options		
Beneficiary Category	Inpatient and Outpatient	
	Direct Care System	Civilian Providers
Active-Duty Service Members (ADs)	Receive care under TRICARE Prime.	Only with Supplemental Care.
Active-Duty Dependents (ADDs)	Eligible. Access to care on a resource available basis at the MTF behind ADs and ADD Prime enrollees.	Eligible, but may need a nonavailability statement.
Retirees, Their Families, and Survivors Under Age 65	Eligible. Access to care on a resource available basis at the MTF behind ADs and ADDs.	Eligible, but may need a nonavailability statement.
Retirees, Their Families, and Survivors Age 65 and Over.	Eligible. Access to care on a resource available basis at the MTF behind ADs and ADDs.	Not eligible.

Source:

Congressional Budget Office, DoD Data, July 1995

Table 6

Estimated Beneficiaries Out-of-Pocket Expenses for TRICARE and FEHB Program

Plan	Estimated Out-of-Pocket Costs		
	Tricare	FEHBP	Difference
Tricare Prime	HMO		
Active duty dependents	\$100	\$700	\$600
Retirees			
Younger than 65	\$1,000	\$700	-\$300
Older than 65	\$1,700	\$700	-\$1,000
Tricare Standard	Fee-for-Service Plan		
Active duty dependents	\$200	\$1,100	\$900
Retirees			
Younger than 65	\$1,100	\$1,100	0
Older than 65	\$1,700	\$600	-\$1,100

Source:

Congressional Budget Office, March 1995

Table 7

Congressional Budget Office's Estimates of Changes in Costs for Fiscal Year 1996 Under
Varying Assumptions about the TRICARE Program

Estimates of Changes in Costs for Fiscal Year 1996 in the TRICARE Program		
	Net Change in Baseline (In millions of dollars)	Percentage Change from Baseline
Base Case	300	3
Optimistic Case	-100	-1
Pessimistic Case	500	6

Source:

Congressional Budget Office, July 1995

Table 8

Department of Defense Cost per Beneficiary in Selected Catchment Areas

Department of Defense Cost per Beneficiary in Selected Catchment Areas for FY 1994

Total DoD Cost for FY 1994			
Source: MEPRS Expense & CHAMPUS			
Catchment Name	Total CHAMPUS Cost	Total Direct Expense	TOTAL
NH San Diego	\$79,112,637	\$545,995,886	\$625,108,523
NH Charleston	\$27,929,417	\$131,133,182	\$159,062,599

Population by Catchment DMISID for FY 1994	
Data Source: DEERS	
Catchment Name	TOTAL
NH San Diego	273,996
NH Charleston	89,151

Total DoD Health Care Cost per Beneficiary by Catchment DMISID for FY 1994	
Catchment Name	TOTAL
NH San Diego	\$2,281
NH Charleston	\$1,784

Source:

Defense Medical Information System, March, 1996

Table 9

Federal Employees Health Benefits Program Cost per Beneficiary

*Federal Employees Health Benefits Program Cost per
Beneficiary for FY 1989 through 1994*

Year	Program Expense	Beneficiaries	Cost per Beneficiary
1989	\$9,950,000,000	8,606,000	\$1,156
1990	\$12,500,000,000	8,823,000	\$1,417
1991	\$13,000,000,000	8,826,000	\$1,473
1992	\$14,000,000,000	8,876,000	\$1,577
1993	\$14,520,000,000	8,806,000	\$1,649

		Year	Cost per Beneficiary
Percent Growth		1989	\$1,156
1989 to 1990	22.54%	1990	\$1,417
1990 to 1991	3.96%	1991	\$1,473
1991 to 1992	7.09%	1992	\$1,577
1992 to 1993	4.54%	1993	\$1,649
a. est 1993 to 1994	9.53%	est 1994	\$1,806
b. est 1993 to 1994	4.54%	est 1994	\$1,724

Source:

Statistical Abstracts: FEHBP for FY 1994, OPM. March, 1996

Table 10

Department of Defense Cost per Beneficiary for FY 1994

Source: MEPRS Expense, CHAMPUS, & DEERS

Total DoD Health Care Budget for FY 1994	\$15,058,000,000
Total DoD Population for FY 1994	8,562,837
Total DoD Cost per Beneficiary for FY 1994	\$1,759

Source: Defense Medical Information System, March, 1996

REFERENCE LIST

- Anderson, Mary E. & Susan D. Hosek. 1994. *Evaluation of the CHAMPUS Reform Initiative: Volume 6, Implementation and Operations*. Santa Monica, CA: National Defense Research Institute, RAND.
- Davidson, Ellen Breslin. July 1995. *CBO Papers: Restructuring Military Medical Care*. Congressional Budget Office, Washington, D.C.
- Defense Authorization Act: Public Law 103-139*. November 11, 1993. 07 Statute-1443.
- Defense Authorization Act: Public Law 104-106*. February 10, 1996. 110 Statute-186.
- Defense Health Care: Despite TRICARE Procurement Improvements, Problems Remain*. August 1995. GAO/HEHS-95-142.
- Defense Health Care: Issues and Challenges Confronting Military Medicine*. March 1995. GAO/HEHS-95-104,
- Department of Defense. "Information Package from the OSD(HA) on the MHSS for the 104th Congress." 1 Mar 1995.
- Group Health Association of America. 1995. *Patterns of enrollment*. Washington, D.C.: Group Health Association of America.
- Hosek, Susan D., Bruce W. Bennett, Joan L Buchanan, M. Susan Marquis, Kimberly A. McGuigan, Janet M. Hanley, Rodger Madison, Afskin Rastegar, & Jennifer Hawes-Dawson. 1995. *The Demand for Military Health Care*. Santa Monica, CA: National Defense Research Institute, RAND.
- Hosek, Susan D., Dana P. Goldman, & Hyecheon Lee. 1994. *Evaluation of the Catchment Area Management, Volume 1 (Draft)*. Santa Monica CA: Forces and Resources Policy Center, RAND.

- Hosek, Susan D., Dana P. Goldman, Lloyd S. Dixon, and Elizabeth M. Sloss. 1993. *Evaluation of the CHAMPUS Reform Initiative: Volume 3, Health Care Utilization and Costs*. Santa Monica, CA: National Defense Research Institute, RAND.
- Interview with TRICARE contractor. September 1995.
- Kongstvedt, Peter R. 1995. *Essentials of managed health care*. Gaithersburg, MD: Aspen Publishers, Inc.
- Minor, A. F., ed. 1996. *Source book of health insurance data, 1995*. Washington, D.C.: Health Insurance Association of America.
- Reily, Patrick. December 1992. *Gateway to care implementation and business plan: How to get there from here*. Technical Report, Defense Information Center, Ft. Belvoir, VA.
- Reischauer, Richard. 1991. *CBO papers: Managed care in the military: The catchment area management demonstrations*. Congressional Budget Office, Washington, D.C.
- Sloss, Elizabeth M. & Susan D. Hosek. 1995. *Evaluation of the Catchment Area Management, Volume 2, Beneficiary Access and Satisfaction (Draft)*. Santa Monica CA: Forces and Resources Policy Center, RAND.
- U.S. Air Force Medical Service. *Air Force Catchment Area Management Demonstration Proposal*. Langley AFB, Va. February 1988.
- U.S. Congress. House. Subcommittee on Civil Service, Committee on Government Reform and Oversight. *Hearing on FEHBP/CHAMPUS: Improving Access to Health Care for Military Families*. 104th Cong. 1st Sess. 12 September 1995.
- U.S. Congress. House. Subcommittee on Civil Service, Committee on Government Reform and Oversight. *Hearing on FEHBP/CHAMPUS: Improving Access to Health Care for Military Families*. William E. Flynn OPM Testimony, 104th Cong. 1st Sess. 12 September 1995.
- U.S. Congress. House. Subcommittee on Civil Service, Committee on Government Reform and Oversight. *Restructuring Military Medical Care*. Neil M Singer CBO Testimony, 104th Cong. 1st Sess. 12 September 1995.

- U.S. Congress. House. Subcommittee on Military Personnel, Committee on National Security. *Defense Health Care: DoD's Managed Care Program Continues to Face Challenges*. David P. Baine GAO Testimony, GAO/T-HEHS-95-117. 104th Cong. 1st Sess. 28 March 1995.
- U.S. Congress. House. Subcommittee on Military Personnel, Committee on National Security. *Defense Health Care: Challenges Facing DoD in Implementing Nationwide Managed Care*. David P. Baine GAO Testimony, GAO/T-HEHS-95-145. 104th Cong. 1st Sess. 19 April 1995.
- U.S. Congress. House. Subcommittee on Military Personnel, Committee on National Security. *Department of Defense Health Care Programs*. Stephen C. Joseph, MD, M.P.H. Assistant Secretary of Defense for Health Affairs Statement. 104th Cong. 2nd Sess. 7 March 1996.
- U.S. Congress. House. Subcommittee on Military Personnel, Committee on National Security. *Defense Health Care: TRICARE Progressing, but Some Cost and Performance Issues Remain*. Stephen P. Backus, Associate Director Health Care Delivery and Quality Issues Health, Education, and Human services Division Statement, GAO/T-HEHS-96-100. 104th Cong. 2nd Sess. 7 March 1996.
- U.S. Congress. House. Subcommittee on Military Personnel, Committee on National Security. *Peacetime Mission of the Military Medical System*. Neil M Singer CBO Testimony, GAO/T-HEHS-95-145. 104th Cong. 1st Sess. 28 March 1995.
- U.S. Congress. House. Subcommittee on Military Personnel, Committee on National Security. *Wartime Mission of the Military Medical System*. Neil M Singer CBO Testimony, GAO/T-HEHS-95-145. 104th Cong. 1st Sess. 30 March 1995.
- U.S. Congress. House. Subcommittee on the Military Forces, Armed Services Committee. *Strategic Plan for Military Health Care*. William J. Lynn prepared statement. Defense Issues 9 (37). 103rd Cong. 2nd Sess. 19 April 1994.
- U.S. Congress. Senate. Subcommittee on Manpower and Personnel, Committee on the Armed Services. *Implementation of the CHAMPUS Reform Initiative*. David P. Baine GAO Testimony. GAO/T-HRD-89-25. 101st Cong., 1st Sess. 5 June 1989.
- U.S. Congress. Senate. Subcommittee on National Security, Committee on Appropriations. *Department of Defense Medical Program, FY 1997*. Stephen C. Joseph, MD., M.P.H., Assistant Secretary of Defense for Health Affairs Statement. 104th Cong., 2nd Sess. 24 April 1996.

U.S. Office of Personnel Management. *Federal Employees Health Benefits Program*. GSA Control No. 2809-219. Washington, D.C.: 1990

United States Office of Personnel Management. *Statistical Abstracts: Federal Employees Benefit Programs for Fiscal Year 1993*. Washington, D.C. November 1994.

United States Office of Personnel Management. *Statistical Abstracts: Federal Employees Benefit Programs for Fiscal Year 1994*. Washington, D.C. March 1996.

Williams, S. J. & P. R. Torrens. 1993. *Introduction to health services*. 4th ed. Albany: Dellmar Publishers, Inc.